

Amendments to the Specification:

Please replace paragraphs [0036], [0037], [0039], and [0040] with the following amended paragraphs:

[0036] Electron transport layer [[140]] 145 may include a material or combination of materials capable of transporting electrons. In an embodiment of the invention, electron transport layer comprises a first organic material acts a host in electron transport layer [[140]] 145, doped with a second organic material that acts as a dopant in electron transport layer [[140]] 145, where the first organic material has an electron affinity that is close to the ionization potential of the second prganic material, as described in greater detail below. The first and second organic materials of hole transport layer 125 and electron transport layer [[140]] 145 may be the same materials, but present in different concentrations in each layer, such that the first organic material is a host in electron transport layer [[140]] 145, and a dopant in hole transport layer 125, whereas the second organic material is a dopant in electron transport layer [[140]] 145, and a host in hole transport layer 125.

[0037] The charge carrying component of the electron transport layer may be selected such that electrons can be efficiently injected from the cathode into the LUMO (Lowest Unoccupied Molecular Orbital) level of the electron transport layer. The “charge carrying component” is the material responsible for the LUMO that actually transports electrons. In a preferred embodiment, this charge carrying component is the first organic material described above with reference to the electron transport layer [[140]] 145. The LUMO level of an organic material may be generally characterized by the electron affinity of that material and the relative electron injection efficiently of a cathode may be generally characterized in terms of the work function of the cathode material. This means that the preferred properties of an electron transport layer and the adjacent cathode may be specified in terms of the electron affinity of the charge carrying component of the ETL and the work function of the cathode material. In particular, so as to achieve high electron injection efficiency, the work function of the cathode material is preferably not greater than the electron affinity of the charge carrying component of the electron transport layer by more than about 0.75 eV, more preferably, by not more than about 0.5 eV. Similar considerations apply to any layer into which electrons are being injected.

[0039] Blocking layers may be used to reduce the number of charge carriers (electrons or holes) and / or excitons that leave the emissive layer. An electron blocking layer 130 may be disposed between emissive layer 135 and the hole transport layer 125, to block electrons from leaving emissive layer 135 in the direction of hole transport layer 125. Similarly, a hole blocking layer 140 may be disposed between emissive layer 135 and electron transport layer 145, to block holes from leaving emissive layer 135 in the direction of electron transport layer 145. Blocking layers may also be used to block excitons from diffusing out of the emissive layer. The theory and use of blocking layers is described in more detail in United States Patent No. 6,097,147 and United States Published Patent Application No. 40/173,682-2003-0230980 A1 to Forrest et al., which are incorporated by reference in their entireties.

[0040] Generally, injection layers are comprised of a material that may improve the injection of charge carriers from one layer, such as an electrode or an organic layer, into an adjacent organic layer. Injection layers may also perform a charge transport function. In device 100, hole injection layer 120 may be any layer that improves the injection of holes from anode 115 into hole transport layer 125. CuPc is an example of a material that may be used as a hole injection layer from an ITO anode 115, and other anodes. In device 100, electron injection layer 150 may be any layer that improves the injection of electrons into electron transport layer 145. LiF / Al is an example of a material that may be used as an electron injection layer into an electron transport layer from an adjacent layer. Other materials or combinations of materials may be used for injection layers. Depending upon the configuration of a particular device, injection layers may be disposed at locations different than those shown in device 100. More examples of injection layers are provided in U.S. Patent Published Application Serial No. 09/931,948US 2004-0174116 A1 to Lu et al., which is incorporated by reference in its entirety. A hole injection layer may comprise a solution deposited material, such as a spin-coated polymer, e.g., PEDOT:PSS, or it may be a vapor deposited small molecule material, e.g., CuPc or MTDATA.